

Radiomorphometric analysis of mandibular ramus height and gonial angle for sex determination

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ABSTRACT

Background. Morphological features of mandible are important for sex determination in odontology forensic investigations. Mandible is a craniofacial bone that is large and strong, with different growth level, duration and mastication force among sex will eventually affect size and shape of mandibular ramus. Ramus height and gonial angle are the most stable characters in mandibular bone. Bone characteristics depend on population, consequently there should be specific standardization in each population.

Objective. To analyze ramus height and gonial angle using panoramic radiographs for sex identification in population of West Java, Indonesia.

Materials & Methods. 100 panoramic radiographs of male and female are collected. Ramus height were measured as the distance between coronion and the intersection of the orientation line with the inferior border of the ramus. Gonial angle were measured as the intersection between a digitally traced line tangential to the most inferior points at the angle and the lower border of the mandibular body and another line tangential to the posterior borders of the ramus and the condyle. The data were tabulated and were analyzed statistically

Results. Ramus height for male is higher ($55.3 \text{ mm} \pm 3.85 \text{ mm}$) than female's ($51.2 \text{ mm} \pm 3.07 \text{ mm}$) with p value 0.001, while gonial angle of male ($121.91^\circ \pm 3.85^\circ$) is smaller than female's ($124.86^\circ \pm 6.38^\circ$) with p value 0.001

Conclusions. Ramus height and gonial angle measurement in this research demonstrated significant difference thus these can be used as parameters for sex identification.